Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): An *E. coli* strain comprising:

a) a disrupted endogenous phosphoenolpyruvate-glucose phosphotransferase system ~~preventing expression of active PEP-glucose phosphotransferase system proteins~~ comprising one or more of:

i) a genetically disrupted endogenous *ptsH* gene preventing expression of active phosphocarrier protein;

ii) a genetically disrupted endogenous *ptsI* gene preventing expression of active phosphoenolpyruvate-protein phosphotransferase; and

iii) a genetically disrupted endogenous *crr* gene preventing expression of active glucose-specific IIA component;

b) ~~an~~ a genetically up regulated endogenous *galP* gene encoding active galactose-proton symporter, said up regulation resulting in an increased galactose-proton symporter activity;

c) ~~an~~ a genetically up regulated endogenous *glk* gene encoding active glucokinase, said up regulation resulting in an increased glucokinase activity; and

d) a genetically down regulated endogenous *gapA* gene encoding active glyceraldehyde 3-phosphate dehydrogenase, said down regulation resulting in a reduced glyceraldehyde 3-phosphate dehydrogenase activity;

whereby said *E. coli* strain is capable of bioconverting a suitable carbon source to 1,3-propanediol.

Claim 2 (canceled)

Claim 3 (currently amended): The *E. coli* strain of Claim 1 ~~Claims 1 or 2~~, comprising a genetically disrupted endogenous *arcA* gene preventing expression of active aerobic respiration control protein.

Claim 4 (withdrawn): The *E. coli* strain of Claims 1, 2, or 3, further comprising one or more of:

i) a disrupted endogenous *mgsA* gene preventing the expression of active methylglyoxal synthase;

j) a disrupted endogenous *ackA* gene preventing the expression of active acetate kinase;

k) a disrupted endogenous *pta* gene preventing the expression of active phosphotrasacetylase;

l) a disrupted endogenous *aldA* gene preventing the expression of active aldehyde dehydrogenase A; and

m) a disrupted endogenous *aldB* gene preventing the expression of active aldehyde dehydrogenase B.

Claim 5 (withdrawn): The *E. coli* strain of Claims 1, 2, 3, or 4, further comprising one or more of:

n) a disrupted endogenous *edd* gene preventing expression of active phosphogluconate dehydratase;

o) a disrupted endogenous *glpK* gene preventing expression of active glycerol kinase; and

p) a disrupted endogenous *gldA* gene preventing expression of active NADH-dependent glycerol dehydrogenase.

Claim 6 (withdrawn): A method for the bioproduction of 1,3-propanediol comprising contacting the *E. coli* strain of Claims 1 or 3 ~~Claims 1, 2, 3, 4 or 5~~ with a suitable carbon substrate under suitable conditions.

Claim 7 (withdrawn): The method of Claim 6, wherein the *E. coli* strain further comprises:

(i) glycerol-3-phosphate dehydrogenase;

(ii) glycerol-3-phosphatase;

(iii) dehydratase; and

(iv) dehydratase reactivation factor.

Claim 8 (currently amended): An *E. coli* strain comprising

a) a disrupted endogenous phosphoenolpyruvate-glucose phosphotransferase system ~~preventing expression of active PEP-glucose phosphotransferase system proteins~~ comprising one or more of:

i) a genetically disrupted endogenous *ptsH* gene preventing expression of active phosphocarrier protein;

ii) a genetically disrupted endogenous *ptsI* gene preventing expression of active phosphoenolpyruvate-protein phosphotransferase; and

iii) a genetically disrupted endogenous *crr* gene preventing expression of active glucose-specific IIA component;

b) ~~an~~ a genetically up regulated endogenous *galP* gene encoding active galactose-proton symporter, said up regulation resulting in an increased galactose-proton symporter activity;

c) ~~an~~ a genetically up regulated endogenous *glk* gene encoding active glucokinase, said up regulation resulting in an increased glucokinase activity;

d) a genetically down regulated endogenous *gapA* gene encoding active glyceraldehyde 3-phosphate dehydrogenase, said down regulation resulting in a reduced glyceraldehyde 3-phosphate dehydrogenase activity;

e) a genetically disrupted endogenous *arcA* gene preventing expression of active aerobic respiration control protein;

f) ~~an~~ a genetically up regulated endogenous *ppc* gene encoding active phosphoenolpyruvate carboxylase, said up regulation resulting in an increased phosphoenolpyruvate carboxylase activity;

g) ~~an~~ a genetically up regulated endogenous *btuR* gene encoding active cob(I)alamin adenosyltransferase, said up regulation resulting in an increased cob(I)alamin adenosyltransferase activity;

h) ~~an~~ a genetically up regulated *yqhD* gene encoding active alcohol dehydrogenase, said up regulation resulting in an increased alcohol dehydrogenase activity;

i) a genetically disrupted endogenous *mgsA* gene preventing the expression of active methylglyoxal synthase;

j) a genetically disrupted endogenous *ackA* gene preventing the expression of active acetate kinase;

k) a genetically disrupted endogenous *pta* gene preventing the expression of active phosphotransacetylase ~~phosphotrasacetylase~~;

l) a genetically disrupted endogenous *aldA* gene preventing the expression of active aldehyde dehydrogenase A;

m) a genetically disrupted endogenous *aldB* gene preventing the expression of active aldehyde dehydrogenase B;

n) a genetically disrupted endogenous *edd* gene preventing expression of active phosphogluconate dehydratase;

o) a genetically disrupted endogenous *glpK* gene preventing expression of active glycerol kinase;

p) a genetically disrupted endogenous *gldA* gene preventing expression of active NADH-dependent glycerol dehydrogenase; and

q) one plasmid selected from the group consisting of

1) a plasmid comprising

i) a first operon comprising genes encoding glycerol-3-phosphate dehydrogenase and glycerol-3-phosphatase,

ii) a second operon comprising a ~~1.6 long GI~~ promoter consisting of the nucleotide sequence set forth in bases 4046-4232 of SEQ ID NO:65, said promoter controlling genes encoding dehydratase and a gene encoding a first subunit of dehydratase reactivation factor,

iii) a third operon comprising a second subunit of dehydratase reactivation factor, and

iv) having the sequence of SEQ ID NO:68;

2) the plasmid of SEQ ID NO:68, optionally containing orfW,

3) the plasmid of 1) or 2), wherein the first operon of i) is present in reverse orientation; and

4) the plasmid of 1), 2) or 3), where a ~~1.5 long GI~~ promoter consisting of the nucleotide sequence set forth in bases 4046-4232 of SEQ ID NO:66 replaces the ~~1.6 long GI~~ promoter in the second operon of ii),

whereby said *E. coli* strain is capable of bioconverting a fermentable carbon source to 1,3-propanediol.